

Please amend the present application as follows:

Specification

The following is a copy of Applicant's specification that identifies language being added with underlining ("____") and language being deleted with strikethrough ("—") or bracketing ("[[]]"), as is applicable:

Page 8, line 13 through page 9, line 18.

FIG. 1 generally illustrates the plasma enhanced chemical vapor deposition system utilized in performing the methods of the present disclosure. As illustrated in FIG. 1, the precursor 5 is fed from a precursor container ~~[[4]]~~ 6 by a conduit ~~[[6]]~~ 7, such as a TEFLON or metal tubing, through a metering valve ~~[[7]]~~ 8, such as a needle valve, to an inlet ~~[[2]]~~ 3 of reactor chamber 1 in the absence of a gas stream.

The reactor chamber 1 is formed from a material capable of withstanding the temperature generated during the CVD process. In particular, the reactor chamber 1 is stainless steel and typically 8" in diameter. When the liquid precursor 5 enters the low pressure side of the metering valve ~~[[7]]~~ 8 within the reactor chamber 1, it vaporizes to form a vapor precursor comprising a mixture with the same molar composition as the liquid precursor 5.

In addition to inlet ~~[[2]]~~ 3, the reactor chamber 1 has an outlet ~~[[3]]~~ 4 connected to a mechanical vacuum pump ~~[[13]]~~ 11 through an automatically controlled throttle valve ~~[[14]]~~ 12 to maintain constant pressure in the reaction chamber 1 throughout the deposition process and for circulating the vapor of the liquid precursor 5 through the reactor chamber 1. The vapor precursor is maintained at a pressure within the vacuum

chamber 1 from about 10 Torr and 130 Torr, about 70 to 130 Torr, about 80 to 130 Torr, and, preferably 110 to 130 Torr, with the pressure being monitored by a pressure gauge (not shown).

The metering valve **[[7]] 8** can include a temperature measuring device (e.g., a thermocouple) coupled to the tip of the metering valve **[[7]] 8**. The vaporization of the liquid precursor 5 causes the metering valve **[[7]] 8** to decrease in temperature to a temperature value. The temperature value is correlated to a flow rate of the liquid precursor 5, which in turn corresponds to a pressure in the reaction chamber 1 under constant conditions. Therefore, opening the metering valve **[[7]] 8** to an extent so that a known temperature value is obtained can substantially reproduce the corresponding flow rate of the liquid precursor 5 into the reaction chamber 1.

Page 10, lines 5 through 18.

Electromagnetic energy **[[8]]** discharged at various frequencies, for example, DC, RF, and microwave, and also high frequency electromagnetic energy such as energy discharged from a laser, is applied to the reactor chamber 1. A window **[[9]]** such as a quartz window that separates the low pressure reactor from ambient pressure and permit microwave energy to propagate into the reaction chamber 1. Preferably, the electromagnetic energy **[[8]]** is microwave energy. The reactor chamber 1 is a part of the cylindrical cavity for the microwave of 2.45 GHz.

A substrate **[[11]] 2** is placed on a substrate holder **[[12]]**, preferably a water-cooled substrate holder to control the temperature of and cool the substrate **[[11]] 2**. The substrate **[[11]] 2** temperature is monitored with a dual color optical pyrometer (not

shown). The vaporized precursor liquid passes across the substrate surface **[[15]]**, in the absence of a carrier gas such as hydrogen (H_2), where the plasma **[[10]]** dissociates the vapor precursor and releases OH, H, O, CH_3 , CH_2 , etc. radicals for a net deposition of diamond on a substrate surface **[[15]]**.